

# *Brachycythara beatriceae*, a new species from the Alboran Sea and the eastern Atlantic Ocean (Gastropoda: Neogastropoda: Conidae)

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## ABSTRACT

Based on shell characters, *Brachycythara beatriceae*, a new gastropod species of the family Conidae from the Alboran Sea and the eastern Atlantic Ocean, is here described. The new taxon, represented by five specimens dredged along the Spanish Mediterranean and the West Sahara coasts, is compared with the similar *Brachycythara atlantidea* (Knudsen, 1952), a species that occurs in the same geographical area. This new species is conchologically distinct and can be identified on the basis of its teleoconch shape, rib count and microsculpture, protoconch morphology, and shell color.

*Additional Keywords:* Mangeliinae, turrid, shell morphology.

## INTRODUCTION

Traditionally, the epithet "turrid" has been used as a general term referring to the numerous species belonging to the family-group Turridae H. Adams and A. Adams, 1853, *sensu lato*. The new taxon described in the article is assigned to the family Conidae Fleming, 1822, subfamily Mangeliinae Fischer, 1883, genus *Brachycythara* Woodring, 1928, in accordance with the revision of the superfamily Conoidea (= Toxoglossa) Rafinesque, 1815, as proposed by Taylor, Kantor, and Sysoev (1993). The genus was re-described by Powell (1966: 117), and consists of small Recent and Tertiary species that mainly occur in the Caribbean area. *Brachycythara* has been represented in the eastern Atlantic Ocean by only one species, *Brachycythara atlantidea* (Knudsen, 1952) (see Rolán and Otero-Schmitt, 1999), which has recently been reported from the Alboran Sea by Smriglio et al. (2007). I had the opportunity to examine five shells of a species that, in spite of their similarity with *B. atlantidea*, could not be considered that species. These shells, collected along the southern Spanish (Costa del Sol) and West Sahara coasts, show features typical of the genus *Brachycythara*. After a comparison with the similar and

sympatric *B. atlantidea*, I believe they represent an undescribed species.

Abbreviations used are: MZB, Laboratorio di Malacologia, Museo di Zoologia dell'Università di Bologna, Italy. Private collections cited in this article are: CS-PM, Carlo Smriglio and Paolo Mariottini (Rome, Italy); SR, Stefano Rufini (Rome, Italy); FG, Franco Gubbioli (Marbella, Spain). SEM photographs were carried out at the LIME (Interdepartmental Laboratory of Electron Microscopy), University "Roma Tre", Rome, Italy.

## SYSTEMATICS

Superfamily Conoidea Rafinesque, 1815

Family Conidae Fleming, 1822

Subfamily Mangeliinae Fischer, 1883

Genus *Brachycythara* Woodring, 1928

**Type Species:** By original designation, *Cythara gibba* Guppy, 1896. Woodring, 1928, Carnegie Institute Washington of Publications 385, p. 175.

*Brachycythara beatriceae* new species  
(Figures 1–9; 13–20)

**Description:** Shell rather small, to 10.9 mm in length, holotype 8.6 × 3.4 mm, biconical, elongate-fusiform, solid, spire about half total height. Protoconch multispiral, dome shaped, of 3–3.5 strongly convex whorls, first 1.5–2 whorls smooth, remainder whorls reticulated with oblique axial costae crossed by spiral ribs of about equal width; protoconch indicative of planktotrophic larval development. Diameter of protoconch about 700–750 µm. Protoconch-teleoconch transition not well marked. Teleoconch of 5–6 whorls, weakly angulate near middle of spire, sutural ramp gently concave, whorl sides gently convex; last whorl about 2/3 shell length. Axial sculpture consisting of 7–8 prominent, slightly opisthocline, flexuous, and narrowly rounded axial folds; folds regularly spaced, with much broader interspaces, reaching from suture to suture on spire but fading out after crossing the



**Figures 1–12.** Shells of *Brachyocythara* species. 1–3. *Brachyocythara beatrixae* new species, holotype, 8.6 × 3.4 mm, MZB 31032, Spain, Alboran Sea, off Marbella, 36°28' N, 4°52' W, 30–40 m. 4–6. *Brachyocythara beatrixae* new species, paratype A, 10.9 × 4.5 mm, CS-PM, Spain, Alboran Sea, off Malaga, 36°33' N, 4°22' W, 50 m. 7–9. *Brachyocythara beatrixae* new species, paratype B, 9.3 × 3.7 mm, FG, coast of West Sahara, 50–60 m. 10–12. *Brachyocythara atlantica* (Knudsen, 1952), specimen L, 9.5 × 3.6 mm, FG, coast of West Sahara, 30–60 m. Scale bars: 2 mm.

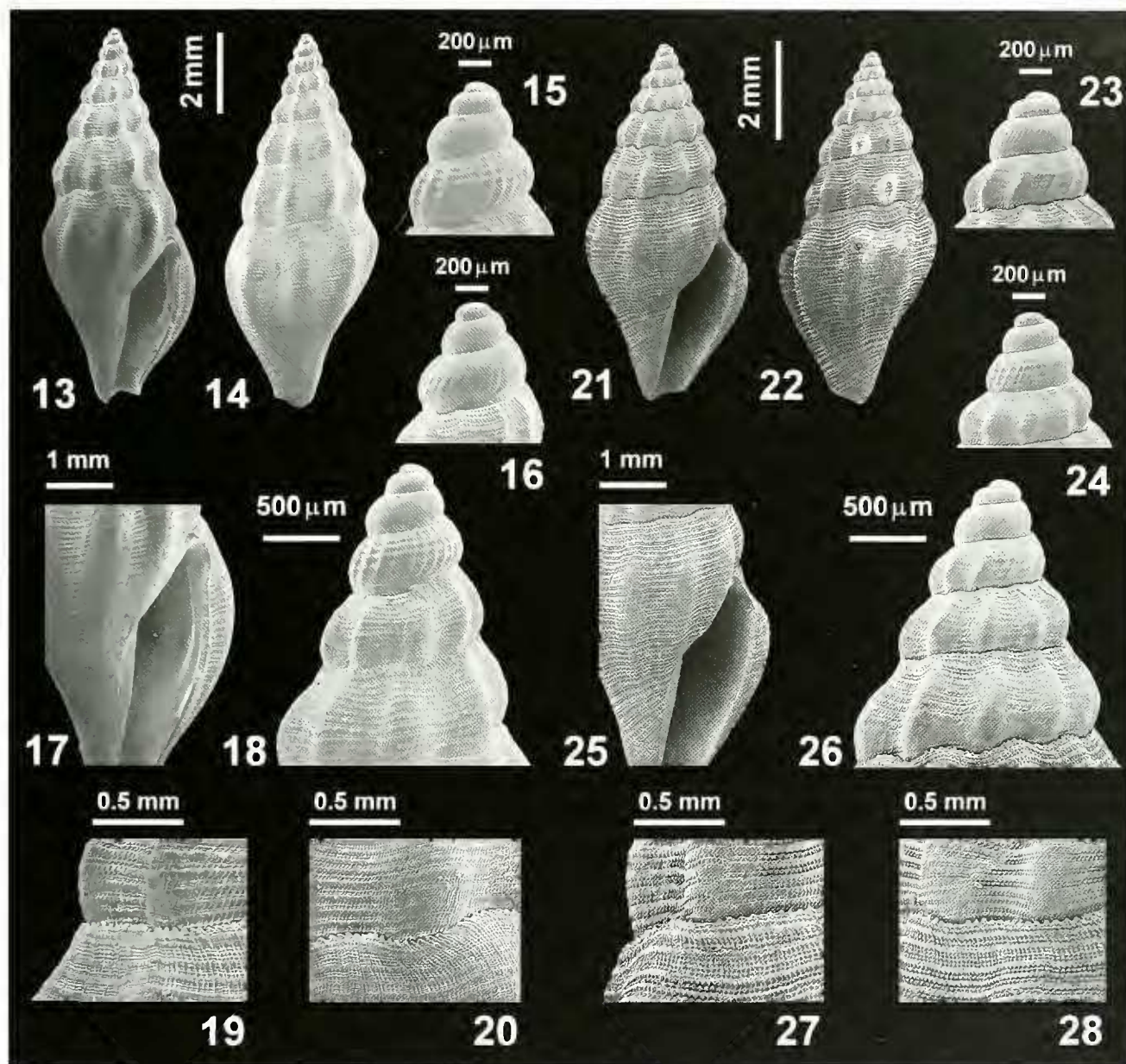
shoulder slope and at about the middle of the base. Spiral sculpture of numerous, very fine threads that densely alternate with bigger interspaces; the subsutural thread shows well-marked axial denticles. At higher magnification, it can be observed that each interspace consists of several (up to five) row of rounded tiny granules, each one linked axially to the upper and lower thread by a very fine connection. Aperture narrow, ovate, about one third of the shell height. Siphonal canal short, narrow, and open. Inner lip with a moderately developed parietal callus pad. Outer lip thin or variced, according to the stage of growth, whether the lip coincides with an axial rib or an interspace. Anal sinus marked, arcuate on shoulder slope. Shell color white, with a brown band on

lower half of body whorl (juvenile and subadult shells uniformly white); a darker spot present on the outer lip at the boundary of the white and the brown colors.

**Type Material:** Holotype (Figures 1–3), 8.6 × 3.4 mm, MZB 31032, Spain, off Marbella, 36°28' N 4°52' W, 30–40 m; Paratype A (Figures 4–6), 10.9 × 4.5 mm, CS-PM, Spain, off Malaga, 36°33' N 4°22' W, 30–40 m; Paratype B, 8.3 × 3.1 mm, SR, Spain, off Malaga, 36°33' N 4°22' W, 30–40 m; Paratype C (Figures 7–9; 13–20), 9.3 × 3.7 mm, FG, West Sahara, 50–60 m; Paratype D, 8.2 × 2.6 mm, FG, West Sahara, 50–60 m.

**Other Material Examined:** Shells of *Brachyocythara atlantica* (Knudsen, 1952): Specimen A, 10.2 × 4.1 mm;





**Figures 13–28.** Shell morphological details of *Brachycythara* species by SEM photographs. **13–14.** *Brachycythara beatriceae* new species, paratype B. **15–20.** Details of the larval whorls and the shell sculpture. **21–22.** *Brachycythara atlantidea* (Knudsen, 1952), spec. F. **23–28.** Details of the larval whorls and the shell sculpture.

Specimen B, 9.2 × 3.7 mm; Specimen C, 7.5 × 3.4 mm; Specimen D, 5.2 × 3.6 mm; Specimens A–D from Spain, off Estepona, 36°25' N, 05°09' W, 150–250 m; Specimen E, 7.7 × 3.4 mm, from Spain, off Adra, 36°45' N, 03°01' W, 50–150 m; Specimen F (Figures 21–28), 7.4 × 3.2 mm; Specimen G, 10.2 × 4.4 mm; Specimens F–G from Spain, off Malaga, 36°33' N, 04°22' W, 50 m; Specimen H, 10.5 × 4.3 mm; I, 9.3 × 3.6 mm; Specimens H–I from Spain, off Marbella, 36°25' N, 04°52' W, 30–40 m; Specimen L (Figures 10–12), 9.5 × 3.6 mm; M, 5.2 × 3.4 mm; Specimen N, 6.3 × 2.6 mm; Specimens L–N dredged along the coast of West Sahara; 30–60 m. Specimens A–G, N are deposited in CS-PM collection, specimens H–M in FG collection.

mens A–G, N are deposited in CS-PM collection, specimens H–M in FG collection.

**Type Locality:** Alboran Sea, Spain, off Marbella, 36°28' N, 4°52' W, 30–40 m depth.

**Distribution:** Alboran Sea (Costa del Sol, Spain) and eastern Atlantic Ocean (West Sahara).

**Habitat:** The dredged specimens were from muddy bottoms.

**Etymology:** This species is named after the author's daughter.

**Remarks:** *Brachycythara beatrixae* new species shows several shell diagnostic features (shape and sculpture of the protoconch and the teleoconch) that match the ones described by Powell (1966: 117, plate 18, fig. 7) for the genus *Brachycythara*, an amphiatlantic group of Recent to Miocene/Pliocene species whose distribution ranges from the Caribbean to the coast of West Africa (Powell, 1966; Rolán and Otero-Schmitt, 1999). *Brachycythara atlantidea* (Figures 10–12, 21–28) has been the only species belonging to this genus known to occur in the eastern Atlantic Ocean (Rolán and Otero-Schmitt, 1999) and in the Alboran Sea (Smriglio et al., 2007). *Brachycythara beatrixae* and *B. atlantidea* show close similarities, but the two taxa can be easily separated on the basis of several shell morphological differences, as summarized in Table 1. Furthermore, at high magnification the complicated spiral microsculpture of *B. beatrixae* shows finer threads, smaller and more numerous granules in each interspace. The finding of three specimens of *B. beatrixae* from two localities off the Spanish coast (Alboran Sea) indicates that this species can be added to the Recent Mediterranean malacofauna, while the collecting depth suggests that it is a circumlittoral species. As a final conclusion, the genus *Brachycythara* is at the present represented by two sympatric species distributed in the Alboran Sea and the eastern Atlantic

Ocean, *Brachycythara atlantidea* and *Brachycythara beatrixae*.

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**Table 1.** Comparisons of shell features between *B. beatrixae* and *B. atlantidea*.

| Morphological characters                     | <i>B. beatrixae</i>           | <i>B. atlantidea</i>      |
|--|-------------------------------|---------------------------|
| Protoconch diameter size (in $\mu\text{m}$ ) | 700–750                       | 600–650                   |
| Protoconch number of whorls                  | 3–3½                          | 3                         |
| Teleoconch axial folds (last whorl)          | 7–8                           | 9–10                      |
| Shell color                                  | white with a basal brown band | uniformly yellowish-brown |